23. The method of claim 22 wherein said myocardial dysfunction is selected from the group consisting of coronary artery disease, ventricular dysfunction and differences in blood flow through disease free coronary vessels and stenotic coronary vessels.

24. The method of claim 22 wherein said adenosine receptor agonist is selected from the group consisting of adenosine, 1-methyl-2-phenylethyl-adenosine, 5-ethyl carboxamide-adenosine, cyclopentyl adenosine, 2-chloro adenosine, adenine, inosine, adenosine monophosphate, adenosine diphosphate and adenosine triphosphate.

25. The method of claim 24 wherein said adenosine receptor agonist is administered by intravenous infusion, intracoronary infusion or bolus injection.

26. The method of claim 25 wherein said adenosine receptor agonist is administered by intravenous infusion in a dosage of about 20 mcg/kg/minute to about 200 mcg/kg/minute.

27. The method of claim 26 wherein said adenosine receptor agonist is administered by intravenous infusion in a dosage of about 140 mcg/kg/minute.

28. The method of claim 25 wherein said adenosine receptor agonist is administered by intracoronary bolus injection in a dosage of about 2 mcg to about 20 mcg.

29. The method of claims 25, 26, 27 or 28 wherein said adenosine receptor agonist is adenosine.

30. The method of claim 22 wherein said technique to detect the presence and assess the severity of myocardial dysfunction is selected from the group consisting of radiopharmaceutical myocardial perfusion imaging when said myocardial dysfunction is coronary artery disease, ventricular function imaging when said myocardial dysfunction is ventricular dysfunction and a method for measuring coronary blood flow velocity when said myocardial dysfunction is the difference in blood flow through disease free coronary vessels as opposed to stenotic coronary vessels.

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~~31~~. The method of claim ~~30~~ 5 wherein said radiopharmaceutical myocardial perfusion imaging is selected from the group consisting of scintigraphy, single photon emission computed tomography (SPECT), positron emission tomography (PET), nuclear magnetic resonance (NMR) imaging, perfusion contrast echocardiography, digital subtraction angiography (DSA) and ultrafast X-ray computed tomography (CINE CT).

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~~32~~. The method of claim ~~31~~ 10 wherein the radiopharmaceutical agent used in conjunction with said radiopharmaceutical myocardial perfusion imaging is selected from the group consisting of thallium-201, technetium-99m, derivatives of technetium-99m, nitrogen-13, rubidium-82 iodine-123 and oxygen-15.

12
~~33~~. The method of claim ~~32~~ 11 wherein said radiopharmaceutical myocardial perfusion imaging technique is scintigraphy and said radiopharmaceutical agent is thallium-201.

13
~~34~~. The method of claim ~~30~~ 5 wherein said ventricular function imaging technique is selected from the group consisting of

echocardiography, contrast ventriculography and radionuclide angiography.

14 13
~~35~~. The method of claim ~~34~~ wherein said ventricular function imaging technique is echocardiography.

15 5
~~36~~. The method of claim ~~30~~ wherein said method for measuring coronary blood flow velocity is selected from the group consisting of doppler flow catheter, digital subtraction angiography and radiopharmaceutical imaging techniques.

16 15
~~37~~. The method of claim ~~36~~ wherein said method for measuring coronary blood flow velocity is doppler flow catheter.

38. A method of detecting the presence and assessing the severity of coronary artery disease in a human comprising the steps of:

(a) administering to said human an amount of an adenosine receptor agonist sufficient to provide coronary artery dilation;

(b) administering a radiopharmaceutical agent into said human; and

(c) performing radiopharmaceutical myocardial perfusion imaging on said human in order to detect the presence and assess the severity of coronary artery disease.

39. The method of claim 38 wherein said adenosine receptor agonist is selected from the group consisting of adenosine, 1-methyl-2-phenylethyl-adenosine, 5-ethyl carboxamide-adenosine, cyclopentyl adenosine, 2-chloro adenosine, adenosine, inosine, adenosine monophosphate, adenosine diphosphate and adenosine triphosphate.

40. The method of claim 39 wherein said adenosine receptor agonist is administered by intravenous infusion, intracoronary infusion or bolus injection.

41. The method of claim 40 wherein said adenosine receptor agonist is administered by intravenous infusion in a dosage of about 20 mcg/kg/minute to about 200 mcg/kg/minute.

42. The method of claim 41 wherein said adenosine receptor agonist is administered by intravenous infusion in a dosage of about 140 mcg/kg/minute.

43. The method of claim 40, 41, or 42 wherein said adenosine receptor agonist is adenosine.

44. The method of claim 38 wherein said radiopharmaceutical agent is selected from the group consisting of thallium-201, technetium-99m, derivatives of technetium-99m, nitrogen-13, rubidium-82 iodine-123 and oxygen-15.

45. The method of claim 44 wherein said radiopharmaceutical agent is thallium-201.

46. The method of claim 38 wherein said radiopharmaceutical myocardial perfusion imaging is selected from the group consisting of scintigraphy, single photon emission computed tomography (SPECT), positron emission tomography (PET), nuclear magnetic resonance (NMR) imaging, perfusion contrast echocardiography, digital subtraction angiography (DSA) and ultrafast x-ray computed tomography (CINE CT).

~~47~~ 26. The method of claim ~~46~~ 22 wherein said radiopharmaceutical myocardial perfusion imaging is scintigraphy.

~~48~~ 43. A method of detecting the presence and assessing the severity of coronary artery disease in a human comprising the steps of:

(a) administering to said human by intravenous infusion about 20 mcg/kg/minute to about 200 mcg/kg/minute of adenosine in order to provide coronary artery dilation;

(b) administering thallium-201 to said human; and

(c) performing scintigraphy on said human in order to detect the presence and assess the severity of coronary artery disease.

49. A method of detecting the presence and assessing the severity of ventricular dysfunction caused by coronary artery disease, in a human, comprising the steps of:

(a) administering to said human an amount of an adenosine receptor agonist sufficient to provide coronary artery dilation;

(b) performing a ventricular function imaging technique on said human; and

(c) determining the presence and assessing the severity of ventricular dysfunction.

50. The method according to claim 49 wherein said adenosine receptor agonist is selected from the group consisting of adenosine, 1-methyl-2-phenylethyl-adenosine, 5-ethyl carboxamide-adenosine, cyclopentyl adenosine, 2-chloro adenosine, adenine, inosine, adenosine monophosphate, adenosine diphosphate and adenosine triphosphate.

51. The method of claim 50 wherein said adenosine receptor agonist is administered by intravenous infusion intracoronary infusion or bolus injection.

52. The method of claim 51 wherein said adenosine receptor agonist is administered by intravenous infusion in a dosage of about 20 mcg/kg/minute to about 200 mcg/kg/minute.

53. The method of claim 52 wherein said adenosine receptor agonist is administered by intravenous infusion in a dosage of about 140 mcg/kg/minute.

54. The method of claim 51, 52 or 53 wherein said adenosine receptor agonist is adenosine.

55. The method of claim 49 wherein said ventricular function imaging technique is selected from the group consisting of echocardiography, contrast ventriculography and radionuclide angiography.

~~56.~~ 34 The method of claim ~~55~~ 30 wherein said ventricular function imaging technique is echocardiography.

~~57.~~ 44 A method of detecting the presence and assessing the severity of ventricular dysfunction in a human comprising the steps of:

(a) administering to said human by intravenous infusion about 20 mcg/kg/minute to about 200 mcg/kg/minute of adenosine in order to provide coronary artery dilation;

(b) performing an echocardiography on said human; and

(c) determining the presence and assessing the severity of ventricular dysfunction.

58. A method of determining the difference between the coronary blood flow through disease free coronary vessels and stenotic coronary vessels in a human comprising the steps of:

(a) administering to said human an amount of an adenosine receptor agonist sufficient to provide coronary artery dilation;

(b) performing a method for measuring coronary blood flow velocity on said human in order to assess the vasodilatory capacity (reserve capacity) of disease free coronary vessels as opposed to stenotic coronary vessels.

59. The method according to claim 58 wherein said adenosine receptor agonist is selected from the group consisting of adenosine, 1-methyl-2-phenylethyl-adenosine, 5-ethyl carboxamide-adenosine, cyclopentyl adenosine, 2-chloro adenosine, adenine, inosine, adenosine monophosphate, adenosine diphosphate and adenosine triphosphate.

60. The method of claim 59 wherein said adenosine receptor agonist is administered by intravenous infusion, intracoronary infusion or bolus injection.

61. The method of claim 60 wherein said adenosine receptor agonist is administered by intravenous infusion in a dosage of about 20 mcg/kg/minute to about 200 mcg/kg/minute.

62. The method of claim 61 wherein said adenosine receptor agonist is administered by intravenous infusion in a dosage of about 140 mcg/kg/minute.

63. The method of claim 60 wherein said adenosine receptor

agonist is administered by intracoronary infusion.

64. The method of claim 60 wherein said adenosine receptor agonist is administered by intracoronary bolus injection in a dosage of about 2 mcg to about 20 mcg.

65. The method of claims 60, 61, 62, 63, or 64 wherein said adenosine receptor agonist is adenosine.

66. The method of claim 58 wherein said method for measuring coronary blood flow velocity is selected from the group of Doppler flow catheter, digital subtraction angiography and radiopharmaceutical imaging techniques.

~~67~~ 42. The method of claim ~~66~~ 39 wherein said method for measuring coronary blood flow velocity is doppler flow catheter.

~~68~~ 45. A method of determining the difference between coronary blood flow through disease free coronary vessels and stenotic coronary vessels in a human comprising the steps of:

(a) administering to said human by intracoronary bolus injection about 2 mcg to about 20 mcg of adenosine, in order to provide coronary artery dilation;

(b) measuring the difference between coronary blood flow through disease-free coronary vessels and stenotic coronary vessels in said human using a doppler flow catheter in order to assess the vasodilatory capacity (reserve capacity) of disease-free coronary vessels as opposed to stenotic coronary vessels.